



***Advancing Native Students in
Aging Research***

University of Minnesota
Minneapolis, MN
August 7-12, 2022

All activities from August 8-12, 2022, will be held at the University of Minnesota. The morning lectures will be held in the Molecular & Cellular Biology (MCB) Building classroom 2-122. The afternoon lab sessions will be held in MCB 2-139 and 2-140. The evening event on August 7 will be held at the Graduate Hotel, Pathways Room, and the evening event on August 12 will be held at Owamni by The Sioux Chef, 420 1st St S, Minneapolis, MN 55401.

Sunday, August 7, 2022

- 4:30 Registration
- 4:45 Welcome Remarks
Gerald Schatten, PhD-University of Pittsburgh, Pittsburgh, PA
Laura Niedernhofer, PhD-University of Minnesota, Minneapolis, MN
- 5:00 Introductions from Faculty/Staff & Students
- 5:30 Dinner [provided]
- 6:30-7:15 **Lecture:** *Indigenous Approaches to Aging: What it means to age in a good way*
Jordan Lewis, PhD, MSW-University of Minnesota, Duluth, MN
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Monday, August 8, 2022

Theme: *Aging Research & Healthy Aging*

- 9:00-10:00 **Lecture:** *Identifying our Needs: A Survey of Elders*
Collette Adamsen, PhD & Jordon Dionne-Center for Rural Health, University of North Dakota, Grand Forks, ND
- 10:00-10:15 Break
- 10:15-11:15 **Lecture:** *Identifying our Needs: A Survey of Elders (con't)*
Collette Adamsen, PhD & Jordon Dionne-Center for Rural Health, University of North Dakota, Grand Forks, ND
- 11:15-12:00 **Virtual Lecture:** *Elder priorities and healthy aging*
Larry Curley, MPA-National Indian Council on Aging, Albuquerque, NM

- 12:00-1:00 Lunch [provided]
- 1:00-1:30 **Discussion:** *Biosafety & Regulatory Restrictions*
- 1:30-2:30 **Lab Basics:** *Lab Basics 101*
- 2:30-2:45 Break
- 2:45-3:15 **Lab Introduction:** *DNA Extractions on Mice Samples*
Michael Martinez-University of Alaska Anchorage, Anchorage, AK
- 3:15-5:15 **Lab Session:** *DNA Extractions on Mice Samples*

Students will apply hands-on skills to extract DNA from mice organs using a Qiagen Blood and Tissue Kit. In addition, they will learn about and apply troubleshooting steps that may increase DNA yield. This involves lysing open cells, binding components onto a column, and eluting final DNA for downstream processes. These methods have been directly applied to COVID-19, bacterial cells, fungi, mice organs, and human cells.

- 5:30 Dinner [on own]

Tuesday, August 9, 2022

Theme: *Designing a Clinical Trial/Brain Aging/Covid & Aging*

- 9:00-9:45 **Discussion:** *Designing a clinical trial in aging space: Identifying needs and endpoints that won't break the budget*
Michael Puskarich, MD-University of Minnesota, Minneapolis, MN
- 9:45-10:30 **Virtual Lecture:** *Psychosocial stress on brain aging*
Alessandro Bartolomucci, PhD-University of Minnesota, Minneapolis, MN
- 10:30-11:00 Break
- 11:00-11:45 **Virtual Lecture:** *Covid and aging: From policy to practice*
Aaron Payment, EdD, EdS, Med-National Indian Health Board, Washington, DC
- 11:45-12:45 Lunch [provided]
- 12:45-1:15 **Lab Introduction:** *Sea Urchins as Models for Aging Research*
Calvin Simerly, PhD-University of Pittsburgh, Pittsburgh, PA & Carrie Hartnett, MFS, Magee-Womens Research Institute, Pittsburgh, PA
- 1:15-4:15 **Lab Session:** *Observing Motility during Fertilization and Early Development in the Sea Urchin*

Students will learn how to collect eggs and sperm from gravid sea urchins. Techniques for the fertilization of spawned eggs will permit students to follow key developmental stages in the progression of the activated eggs under inverted phase microscopy. The goal is simply to observe the wonders of this exquisite process in real-time.

4:30 Dinner [on own]

Wednesday, August 10, 2022

Theme: *Food Systems & Health Aging*

9:00-9:45 **Lecture:** *Land, Food, and You: A Traditional Perspective on Health*
Alec Calac-University of California San Diego, San Diego, CA

9:45-10:30 **Virtual Lecture:** *Regulation of healthy aging by dietary protein and branched-chain amino acids*
Dudley Lamming, PhD-University of Wisconsin-Madison, Madison, WI

10:30-11:00 Break

11:00-12:15 **Movie:** *Gather*

12:15-1:15 Lunch [provided]

1:15-1:45 **Lab Introduction:** *Identifying and Targeting Senescent Cells to Treat Aging*
Matthew Yousefzadeh, PhD-University of Minnesota, Minneapolis, MN

1:45-4:45 **Lab Session:** *Identifying and Targeting Senescent Cells to Treat Aging*
Carolina Soto-Palma, PhD-University of Minnesota, Minneapolis, MN

Students will learn what drives cells to senesce, how cells change upon senescence, what endpoints are used to detect senescent cells, and how senescent cells can be specifically targeted to undergo apoptosis as a potential approach to extend human healthspan.

5:00 Dinner [on own]

Thursday, August 11, 2022

Theme: *Community-driven research/Models for Studying Aging*

9:00-9:45 **Virtual Lecture:** *Community/Tribally Based Participatory Research (C/TBPR) in Native Communities*
Melissa Walls, PhD-Johns Hopkins Center for American Indian Health, Duluth, MN

9:45-10:30 **Lecture:** *Mice as a model organism to study aging*
Laura Niedernhofer, MD, PhD-University of Minnesota, Minneapolis, MN

10:30-11:00 Break

11:00-11:45 **Lecture:** *C. elegans as a model for aging research*
Matt Gill, PhD-University of Minnesota, Minneapolis, MN

11:45-12:45 Lunch [provided]

12:45-1:15 **Lab Introduction:** *Using the worm *Caenorhabditis elegans* as a genetic model system for longevity and stress survival*
Bryan Martinez, PhD-University of Minnesota, Minneapolis, MN

1:15-5:00 **Lab Session:** *Using the worm *Caenorhabditis elegans* as a genetic model system for longevity and stress survival*

Students will learn basic handling and husbandry techniques for *C. elegans* including moving them, labeling culture dishes appropriately, and using a stereomicroscope to observe animals and record differences between strains. They will also learn how to record observed differences between strains and learn how genetic relationships are interpreted based on these differences and will perform analyses on animals exposed to heat stress at two or three-time points. In addition, the students will get to observe a translational GFP reporter for the protein DAF-16, including genetic manipulations which may alter the subcellular localization of this protein.

5:15 Dinner [on own]

Friday, August 12, 2022

Theme: *Career Strategies and Mentorship*

9:00-9:45 **Lecture:** *How to prepare for graduate school*
Nicholas Courtney-Course Advisor, Magee-Womens Research Institute, Pittsburgh, PA

9:45-10:30 **Lecture:** *Impostor Phenomenon in the Sciences*
Alec Calac-University of California San Diego, San Diego, CA

10:30-11:00 Break

11:00-12:00 **Lecture:** *The Medical field today*
Alec Calac-University of California San Diego, San Diego, CA
Yoji Shimizu, PhD-University of Minnesota, Minneapolis, MN

12:00-1:00 Lunch [provided]

1:00-3:00 Campus Tour

Ceremony and Banquet

6:00 Dinner

7:15 Presentation of Certificates